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EMERGENCY TESTS USED IN CLINICAL CHEMISTRY

THESIS SUBMITTED FOR PARTIAL FULFILLMENT OF THE MS, DEGREE IN CLINICAL PATHOLOGY

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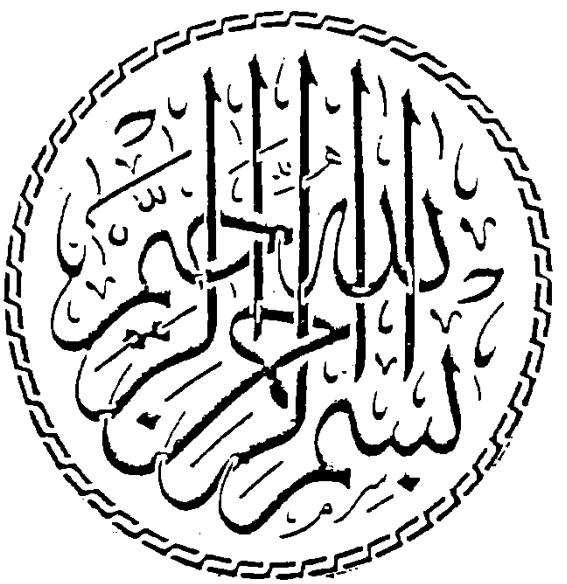

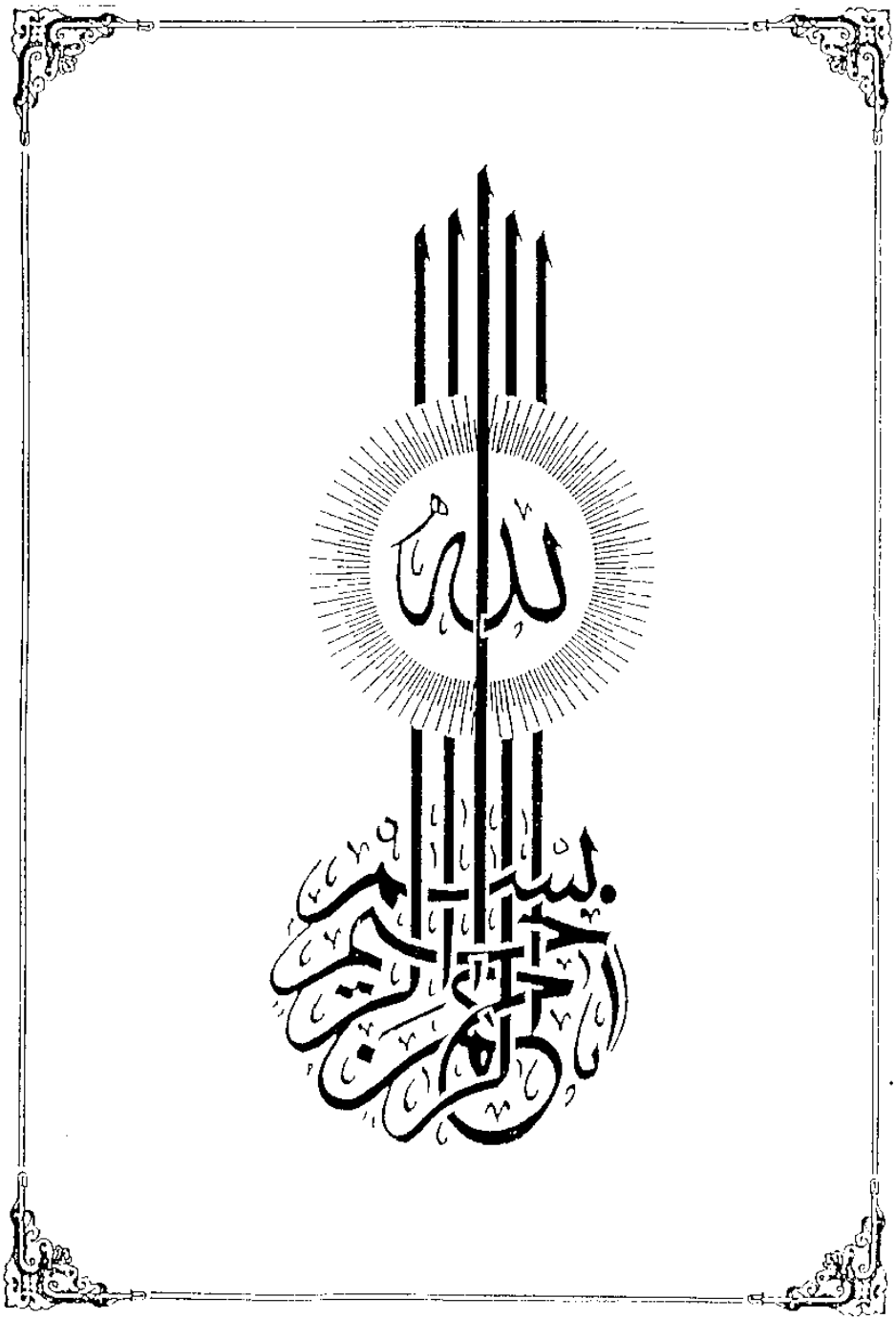

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INTRODUCTION AND AIM OF THE WORK

EMERGENCY TEST USED IN CLINICAL CHEMISTRY

Introduction :

There are already over thosand available laboratory tests and the number is constantly increasing. Trying to learn about tests one by one is a frustrating and time consuming task. So in the content of differential diagnosis , laboratory tests should be chosen like a profile, not a shotgun to confirm or exclude a given diagnosis (Rosenblatt et al., 1982).

Aim Of Work :

(1) Discussion of the routine emergency tests, their indication and usage.

(2) Trials to reduce the number of emergency tests without loss of their effectivness scince junior staff order too many tests.

(3) Trials to focus on the factors that may affect test practice in the out of hours investigations.

EMERGENCY TESTS

EMERGENCY TEST

The clinical chemistry department can cope with a large work load of tests requested during working day but the out of hours investigations "Emergency Tests" must be of certain indication and usage for the clinicians, because it pose more problems to the laboratory (Bhantngar et al., 1989).

A small number of laboratory tests are required in order to substantiate a diagnosis and/ or to intiate treatment. If these tests are done outside normal working hours, they are teremed the out of hours investigations. (Bhantnagar et al., 1989).

Types Of Emergency Tests :

Emergency tests can be classified to the following types :

1. Tests for General Biochemistry.
2. Tests for Special Biochemistry.
3. Tests for Drugs.

1. Tests For General Biochemistry :

Assays for general biochemistry should be available freely and will be helpful for most of routine emergencies in adult and pediatric medicine (Bhantnagar et al., 1989).

Indication and usage of general biochemistry tests include the following analytes :

Blood gases, postassium, sodium, urea, creatinine and glucose.

Turnaround time for some analytes such as blood gases or potassium may vary with each case and should be identified on the requested form by the physician (Bhantnagan et al., 1989).

There are many indications for plasma postassium as recent myocardial infarction, sever cardiac failure, arrythmias, ketoacidosis, multible injuries and burns, sever diahroea and vomiting and renal failure.

Sodium analysis is usually asked for assessing hydration and to adjust intravenous theraby.

Urea and creatinine determination are indicated in the diagnosis of suspected acute renal failure and to monitor renal failure and hydration.

Blood glucose is asked for confirming hyper or hypo glycaemia, in all patients presenting with unexplained blood glucose. It is measured before giving intravenous glucose (Blratnagar et al., 1989).

2. Tests for Special Biochemistry :

Tests for special biochemistry category may be needed to provide support for patient referred to/or transferred to specialist units. In most cases these tests can be postponed until next working day, and must be offered only after discussion with senior staff in the laboratory (Bhantagar et al., 1989).

Special biochemistry tests include, plasma chloride, plasma magnesium, plasma albumin, carboxy haemoglobin, urine sodium and urine porphobilinogen.

Plasma chloride is indicated in the diagnosis of pyloric stenosis in neonates and to calculate anion gap instead of measuring plasma lactate.

The main indication for plasma magnesium is in cases of tetany not relieved by calcium injections.

In suspected cases of carbon monoxide poisoning, the diagnosis is confirmed by measuring of carboxy haemoglobin.

There are two indications for urinary sodium:

(a) To differentiate between renal and prerenal failure.

(b) In the diagnosis of inappropriate anti diuretic hormone secretion.

Prophobilinogen may be asked for the diagnosis of patients with suspected acute inter mittent porphyria (Bhatnagar et al., 1989).

3. Tests for Drugs :

Tests for drugs should be limitted only to patient with over dose or potential organ donors. It is reasonable to offer a screen for salicylate and paracetamol as these are commonly used in over dose and the drug level determination is important to determine the treatment. Samples for all other